



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

SW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,452	03/31/2000	Mark D Amundson	279.152US1	3682
21186	7590	06/17/2004	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			OROPEZA, FRANCES P	
			ART UNIT	PAPER NUMBER
			3762	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/541,452

Applicant(s)

AMUNDSON ET AL.

Examiner

Frances P. Oropeza

Art Unit

3762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment (3/22/04).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,6,8-11,13-15,23-26 and 30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,6,8-11,13-15,23-26 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. Claims 2, 6, 8-11, 13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brownlee et al. (US 4134408) in view of Silvian (US 6301504) and further in view of Donders et al. (US 6115634).

Brownlee et al. disclose an external multi-loop large-diameter telemetry coil, the conductive wire of the telemetry coil wound in a substantially common plane, coupled by telemetry to a receiving coil of an implantable device. The external telemetry coil is housed within a bed or chair. The coil made of known coated and insulating materials that conform to irregular surfaces of the body yet has shape retention. The bed or chair is flexible based on the materials of construction, and the bed or chair surrounds the telemetry coil, hence providing a flexible housing for the coil. Sheets and a mattress pad are read to supply the padded cover disposed over the housing. The outer dimension of the external telemetry coil is read to be a diameter in the range of fifteen (15) to forty-six (46) centimeters (approximately six to eighteen inches). (figures 3b and 3c; col. 2 @ 10-25; col. 4 @ 32-37; col. 5 @ 55-65).

Brownlee et al. disclose the claimed invention except for a magnetically permeable core surrounded by the telemetry coil (claims 15 and 6).

Silvian discloses a high-speed telemetry system with a transmit coil (22) and a receive coil (30) and teaches the use of a ferrite core (ferrite is known in the telemetry communication art to be a powered magnetic material consisting chiefly of ferric oxide) to support high transmission rates. It would have been obvious to one having ordinary skill in the art at the time of the invention to have used the ferrite core in the Brownlee et al. system in order enable high

transmission rates so data can be transferred without significant error while preserving limited power resources of the implanted device (col. 1 @ 50-55; col. 6 @ 55-58; col. 9 @ 39-42).

Modified Brownlee et al. disclose the claimed invention except for the loops of the around the core being positioned to form a substantially constant gap between adjacent loops (claim 15).

Donners et al. teach telemetry coil spacing using equally spaced telemetry coils with a substantially constant gap for the purpose optimizing the telemetry communications. It would have been obvious to one having ordinary skill in the art at the time of the invention to have used equally spaced telemetry loops/ coils with a substantially constant gap in the modified Brownlee et al. system in order to use a proven antenna configuration to efficiently download and up-link communication between the implanted device and the external programmer, hence creating energy efficient transmissions to optimize the life of the implanted device energy supply and providing a rapid data transmission rate to optimize the time of the attending doctor (abstract; col. 3 @ 41-51; col. 4 @ 17-28).

The Applicant's arguments filed 3/22/04 have been fully considered, but they are not convincing.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Brownlee et al. teach an external large-diameter transmitting coil (col. 2 @ 10-12).

Brownlee et al. teach a telemetry coil (col. 2 @ 22-25).

The Brownlee et al. coil configuration is multi-looped and wound in a substantially in a common plane (fig. 3(b); col. 2 @ 10-14; col. 5 @ 55-63).

Brownlee et al. teach the coil communicates with an implantable device (col. 2 @ 22-25; col. 5 @ 58-63).

The magnetically permeable core is taught by Silvain (col. 6 @ 55-59).

The Examiner is unclear about the Applicant's arguments regarding the statement in association with Brownlee et al. that brings into question that a bed or chair is flexible based on the material of construction, and the bed or chair surrounds the telemetry coil, hence providing a flexible housing for the coil. Brownlee et al. teach a telemetry coil mounted in a bed or chair (col. 2 @ 15-21). According to Webster's Dictionary, a flexible item is one that is capable of being flexed and yields to influences. According to Webster's Dictionary, a bed is a mattress filled with soft material, the soft material flexing to support a reclined body, hence the bed is read to provide a flexible housing for the coil.

In response to The Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Brownlee et al. (fig. 3(b); col. 2 @ 22-25; col. 5 @ 58-63) and Silvan

(abstract; col. 1 @ 6-9) are both directed to telemetry systems and coils associated with implantable devices. Donders et al. teach telemetry coil configurations associated with medical devices (abstract). Donders et al. is combined with modified Brownlee et al. to teach coil spacing. For the reasons above, the references are deemed combinable.

2. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weijand (US 6298271) in view of Silvian (US 6301504) and further in view of Donders et al. (US 6115634).

Weijand discloses a medical system having improved telemetry. A first (1) and second (2) telemetry coil concentrically planarly wound substantially in a common plane communicates with the implanted medical device antenna (30) using RF signals (figure 2; col. 2 @ 38-39; col. 4 @ 7-13). It is inherent this communication is inductive. The communication lead has a first and second end; the first end is connected to the telemetry coils and the second end is connected to the programmer (figure 1A; col. 2 @ 30-38). The first and second telemetry coils include one or more loops of a conductive wire (col. 3 @ 36-64). The one or more loops of the conductive wire are concentrically wound in a common plane (col. 3 @ 36-64; col. 4 @ 11-14).

Weijand discloses the claimed invention except for a magnetically permeable core surrounded by the telemetry coil.

Silvian discloses a high-speed telemetry system with a transmit coil (22) and a receive coil (30) and teaches the use of a ferrite core (ferrite is known to be a powdered magnetic material consisting chiefly of ferric oxide) to support high transmission rates (col 6 @ 55-58;

col. 9 @ 39-42). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the medical system having improved telemetry as taught by Weijand, with the ferrite core as taught by Silvian to provide a coil configuration that will enable high transmission rates so data can be transferred without significant error while preserving the limited power resources of the implanted device (col. 1 @ 50-55).

Modified Weijand discloses the claimed invention except for the loops of the around the core being positioned to form a substantially constant gap between adjacent loops.

Donners et al. teach telemetry coil pacing using equally spaced telemetry coils with a substantially constant gap for the purpose optimizing the telemetry communications. It would have been obvious to one having ordinary skill in the art at the time of the invention to have used equally spaced telemetry loops/ coils with a substantially constant gap in the modified Weijand system in order to use a proven antenna configuration to efficiently download and up-link communication between the implanted device and the external programmer, hence creating energy efficient transmissions to optimize the life of the implanted device energy supply and providing a rapid data transmission rate to optimize the time of the attending doctor (abstract; col. 3 @ 41-51; col. 4 @ 17-28).

The Applicant's arguments filed 3/22/04 have been fully considered, but they are not convincing.

In response to the Applicant's argument that there is no suggestion to combine the references because the resultant invention would be unsatisfactory, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to

produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Weijand (fig. 2; abstract; col. 1 @ 6-9) and Silvan (abstract; col. 1 @ 6-9) are both directed to telemetry systems with coils associated with implantable devices. Donders et al. teach telemetry coil configurations associated with implantable devices (abstract). Donders et al. is combined with modified Weijand to teach coil spacing. Modified Weijand is not view as being unsatisfactory for its intended purpose as asserted by the Applicant as the coil spacing taught by Donders optimizes the transmissions. For the reasons above, the references are deemed combinable and the resultant device satisfactory.

3. Claims 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weijand (US 6298271) in view of Silvan (US 6301504) and further in view of Donders et al. (US 6115634) and further in view of Kung (US 6400991). As discussed in paragraph 3 of this action, modified Weijand discloses the claimed invention except for the outer dimension of the first and second telemetry coils being a diameter in a range of fifteen (15) to forty-six (46) centimeters.

Kung discloses an electromagnetic field source with two primary coils and teaches that the size of the coil is dependent on how much current you want to induce in the implanted device coils. Hence, it would be obvious to provide external telemetry coils where the outer dimension of the first and second coils is a diameter in a range of fifteen (15) to forty-six (46) centimeters to



enable communication at an appropriate current level with the implanted device. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the modified medical system having improved telemetry as taught by modified Weijand, with the outer dimension of the first and second telemetry coils being a diameter in a range of fifteen (15) to forty-six (46) centimeters as taught by Kung to enable effective and efficient communication of energy between the external device and the implanted device (col. 3 @ 13-36).

The Applicant's arguments filed 3/22/04 have been fully considered, but they are not convincing.

The Applicant asserts Kung does not teach "the predetermined outer dimension is a diameter in a range of fifteen (1) to forth-six (46) centimeters". The Examiner disagrees. The rejection of record is an obvious rejection. Kung discloses an electromagnetic field source with two primary coils (figure 1) and teaches that the size of the coil is dependent on how much current you want to induce in the implanted device coils (col. 3 @ 15-16). Hence, it would be obvious to provide external telemetry coils where the outer dimension of the first and second coils is a diameter in a range of fifteen (15) to forty-six (46) centimeters to enable communication at an appropriate current level with the implanted device (col. 3 @ 13-35).

In response to the Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the

knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Weijand (fig. 2; abstract; col. 1 @ 6-9) and Silvan (abstract; col. 1 @ 6-9) are both directed to telemetry systems associated with implantable devices. Donders et al. teach telemetry coil configurations associated with implantable devices (abstract). Jung is directed to the transfer of energy to an implanted device using telemetry coils (abstract). Jung is combined with modified Weijand to teach coil sizing based on the application. The inductive transfer of energy and communications using telemetry coils is accepted practice in the implantable medical device, hence the references are deemed combinable.

4. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weijand (US 6298271) in view of Silvian (US 6301504) and further in view of Donders et al. (US 6115634) and further in view of Zarinetchi et al (US 6389318). As discussed in paragraph 3 of this action, modified Weijand discloses the claimed invention except for providing a flexible, insulated housing for the external telemetry coil that will conform to an irregular surface to enable the device to mate with the patient's body.

Zarinetchi et al. disclose a transcutaneous energy transfer device and teach that it is known to provide a flexible insulated housing for the primary coils that will conform to an irregular surface. The padded cushions (700/701 and 702/712) are read to create the insulated housing (col. 4 @ 59-65; col. 6 @ 56 – col. 7 @ 29; figures 7A & 7B). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the modified medical system having improved telemetry as taught by modified Weijand, with the

insulated housing for the external telemetry coil that conforms to an irregular surface as taught by Zarinetchi et al. to enable the device to mate with the patient's body so a comfortable and effective interface with the patient is provided (col. 6 @ 57-61).

The Applicant's arguments filed 3/22/04 have been fully considered, but they are not convincing.

The Applicant asserts Zarinetchi et al. does not teach a flexible housing for the first and second coils. The Examiner disagrees. The housing is created by layer 700/701 and layer 702/712. The insulation is the ferrite shield (16) (col. 6 @ 57 – col. 7 @ 28).

In response to the Applicant's argument that there is no suggestion to combine the references because the resultant invention would be unsatisfactory, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Weijand (fig. 2; abstract; col. 1 @ 6-9) and Silvan (abstract; col. 1 @ 6-9) are both directed to telemetry systems with coils associated with implantable devices. Donders et al. teach telemetry coil configurations associated with implantable devices (abstract). Zarinetchi et al. is directed to the transfer of energy by way of telemetry to using inductive telemetry coils (abstract). Donders et al. is combined with modified Weijand to teach coil spacing. Zarinetchi et al. is combined with modified Weijand to teach a flexible insulated housing. Modified Weijand is not view as being

unsatisfactory for its intended purpose as asserted by the Applicant as the coil spacing taught by Donders optimizes the transmissions and the flexible housing taught by Zarinetchi et al. increases patient comfort. For the reasons above, the references are deemed combinable and the resultant device satisfactory. The inductive transfer of energy and communications using telemetry coils is accepted practice in the implantable medical device, hence the references are deemed combinable.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weijand (US 6298271) in view of Stokes et al. (US 5814089).

Weijand discloses a medical system having improved telemetry. A first (1) and second (2) telemetry coil concentrically planarly wound substantially in a common plane communicates with the implanted medical device antenna (30) using RF signals (figure 2; col. 2 @ 38-39; col. 4 @ 7-13). It is inherent this communication is inductive. The communication lead has a first and second end; the first end is connected to the telemetry coils and the second end is connected to the programmer (figure 1A and col. 2 @ 30-38). The first and second telemetry coils include one or more loops of a conductive wire (col. 3 @ 36-64). The loops of the conductive wire are concentrically wound in a common plane (col. 3 @ 36-64; col. 4 @ 11-14).

Weijand discloses the claimed invention except for the second telemetry coil being arranged and operated at a different telemetry operational frequency than the first telemetry coil.

Stokes et al. discloses a single and multi-antenna transmitter (37) and teaches using different operating frequencies for different antennas for the purpose of optimizing the telemetry transmission of power and data. Therefore it would have been obvious to one having ordinary

skill in the art at the time the invention was made to modify the medical system having improved telemetry as taught by Weijand, with the use of different operating frequencies as taught by Stokes et al. to enable simultaneous sending of optimized telemetry signals while optimizing the power efficiency of the communication system (abstract; col. 2 @ 11-37; col. 4 @ 33-46; col. 5 @ 8-31).

The Applicant's arguments filed 3/22/04 have been fully considered but they are not convincing.

The Applicant asserts the references do not teach all the elements in the first paragraph following the preamble of claim 30. The Examiner disagrees and references the rejection above as each limitation has a cited passage.

The Applicant asserts Stokes et al. does not teach a multi-antenna transmitter. The Examiner disagrees. A multi-antenna transmission approach is disclosed (col. 4 @ 39-44).

The Applicant asserts Stokes does not teach different telemetry operating frequencies. The Examiner disagrees. Stokes does teach different telemetry operating amplitudes and frequencies depending on unit spacing (col. 5 @ 21-26).

In response to the Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.

Art Unit: 3762

1992). In this case, the motivation to combine as noted in the rejection of record: "Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the medical system having improved telemetry as taught by Weijand, with the use of different operating frequencies as taught by Stokes et al. to enable simultaneous sending of optimized telemetry signals while optimizing the power efficiency of the communication system (abstract; col. 2 @ 11-37; col. 4 @ 33-46; col. 5 @ 8-31)." is deemed reasonable. The rejection of record stands.

***Statutory Basis***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Fran Oropeza whose telephone number is (703) 605-4355. The Examiner can normally be reached on Monday – Thursday from 6 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Angela D. Sykes can be reached on (703) 308-5181. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-4520 for regular communication and (703) 306-4520 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.

Frances P. Oropeza  
Patent Examiner  
Art Unit 3762

*frp*  
6/13/04

*Angela D. Sykes*

ANGELA D. SYKES  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700